



**School of Medicine
and Public Health**
UNIVERSITY OF WISCONSIN-MADISON

UW/CT Motion Contrast Injection Protocol Manual

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REF

Rev: 1.0



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University of Wisconsin-Madison
610 Walnut Street
Madison, WI 53726

Manufactured in USA

Almost all of the UW/GE CT protocols use a weight based IV contrast dosing model. Each protocol has an IV contrast section with injection guidance based off the patient's weight. In this UW/CT Motion Contrast Injection Protocol Manual, we will discuss all injection types and how they are pre-programmed on the Ulrich CT Motion syringeless injector system. Each UW contrast media injection protocol has been assigned a number from 001 - 100 which allows the protocols to be arranged on the injector terminal in the order we desire, rather than alphabetical order. We can also refer to each injection protocol number within the UW CT scan protocol. Within the scan protocols there is an IV Contrast media section where the user will see an Ulrich CT Motion protocol injection number associated with the IV contrast instructions.

We utilize a weight-based table for routine body scans. It mimics the software on our UW Contrast Calculator posted on our website <https://uwgect.wiscweb.wisc.edu/general-resources/ct-contrast-volume-and-flow-rate-calculator/>. The Ulrich CT motion injector system does not have the software to pull patient weight from the Radiology Information System (RIS), or even manually enter the patient weight, and then convert the volume/adjust for contrast media concentration. The technologist uses this table to look up the patient's weight and contrast concentration, then enters the patient's volume into our pre-programmed protocol.

Patient Weight (lbs)	Contrast Volume (mL) (300 mg/mL concentration)	Contrast Volume (mL) (350 mg/mL concentration)	Saline Volume (mL)
130 and less	80 (minimum amount to load)	69 (minimum amount to load)	50
140	86	74	50
150	92	79	50
160	98	84	50
165	101	87	50
170	104	89	50
175	107	92	50
180	110	94	50
190	116	99	50
200	122	105	50
210	129	111	50
220	135	116	50
230	141	121	50
240	147	126	50
250 and larger	150 (max amount to load)	129 (max amount to load)	50



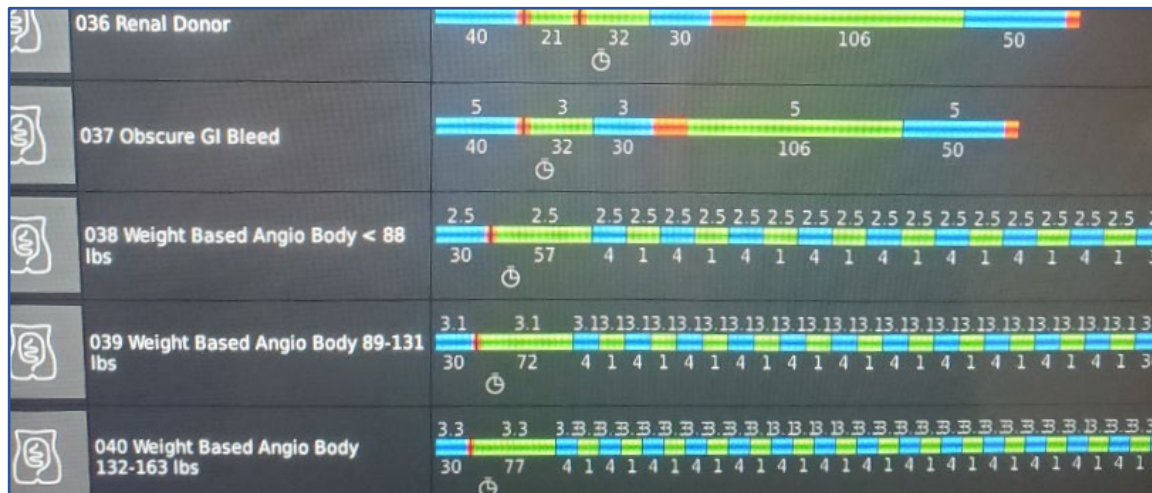
Option 1: IV Contrast Parameters 350 mgI/mL [edit]		
Select Ulrich protocols 69-71		
Weight Ranges	Contrast Dosage	Injection Rate
Less than 200 lbs. (Less than 90 kg)	79 mL Iohexol 350 mgI/mL + 50 mL NaCl flush	5 mL/sec
200-300 lbs (90-136 kg)	106 mL Iohexol 350 mgI/mL + 50 mL NaCl flush	5 mL/sec
More than 300 lbs (More than 136 kg)	132 mL Iohexol 350 mgI/mL + 50 mL NaCl flush	5.5 mL/sec
18 G Antecubital IV Started in the Right Arm		
Option 2: IV Contrast Parameters 300/370 mgI/mL [edit]		
Weight Ranges	Contrast Dosage	Injection Rate
Less than 200 lbs. (Less than 90 kg)	75 mL Iopamidol 370 mgI/mL (Isovue) + 50 mL NaCl flush	5 mL/sec
200-300 lbs (90-136 kg)	100 mL Iopamidol 370 mgI/mL (Isovue) + 50 mL NaCl flush	5 mL/sec
More than 300 lbs (More than 136 kg)	125 mL Iopamidol 370 mgI/mL (Isovue) + 50 mL NaCl flush	5.5 mL/sec
18 G Antecubital IV Started in the Right Arm		

We have designated weight bins with associated contrast volumes for every Neuro and Cardiovascular protocol. As you can see above, the contrast volumes/injection protocol associated with Iohexol 350 would be delivered via our Ulrich CT Motion injector. More specifically, it tells the technologist to select protocol numbers 69-71. For example, protocol #69 would be for a Coronary CTA patient weighing less than 200 lbs., protocol #70 would be for a Coronary CTA patient weighing between 200-300 lbs. and protocol #71 would be for a Coronary CTA patient weighing over 300 lbs.

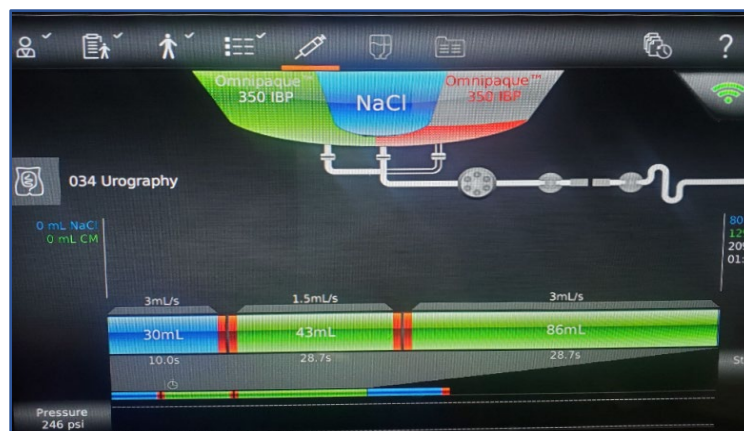
Below is the example regarding our CTA Stroke Deluxe (CTA Head, Neck, and perfusion as well as the CTA Head & Neck, CTA Head and/ or Neck only – without the perfusion series).

Option 1: IV Contrast Parameters 350 mgI/mL		
Select Ulrich protocols 4-9		
Adult CTA		
Weight Ranges	Contrast Dosage	Injection Rate
Less than 200 lbs (Less than 90 kg)	70 mL of Iohexol 350 mgI/mL + 50 mL NaCl flush	4 mL/sec
200-300 lbs (90-136 kg)	90 mL of Iohexol 350 mgI/mL + 50 mL NaCl flush	5 mL/sec
More than 300 lbs (More than 136 kg)	108 mL of Iohexol 350 mgI/mL + 50 mL NaCl flush	5 mL/sec
Neuro Adult CTA Perfusion Phase		
Weight Ranges	Contrast Dosage	Injection Rate
Less than 200 lbs (Less than 90 kg)	42 mL of Iohexol 350 mgI/mL + 30 mL NaCl flush	5 mL/sec
200-300 lbs (90-136 kg)	53 mL of Iohexol 350 mgI/mL + 30 mL NaCl flush	5.5 mL/sec
More than 300 lbs (More than 136 kg)	53 mL of Iohexol 350 mgI/mL + 30 mL NaCl flush	5.5 mL/sec





Some protocols require separate bolus injections, such as a small bolus injection prior to a long delay, and a main injection bolus. In the urogram protocol, we inject a small bolus, wait 10 minutes, then inject a main bolus just prior to scanning. This allows us to obtain a nephrographic phase as well as a portal venous phase simultaneously in one scan acquisition. Below we can see the hard stop between the first 43mL bolus and the main 86mL bolus. We should also note the small stopwatch symbol that starts counting at the start of the first injection. This stopwatch symbol is programmable and can be moved wherever it is most sensible to start monitoring elapsed time since injection.



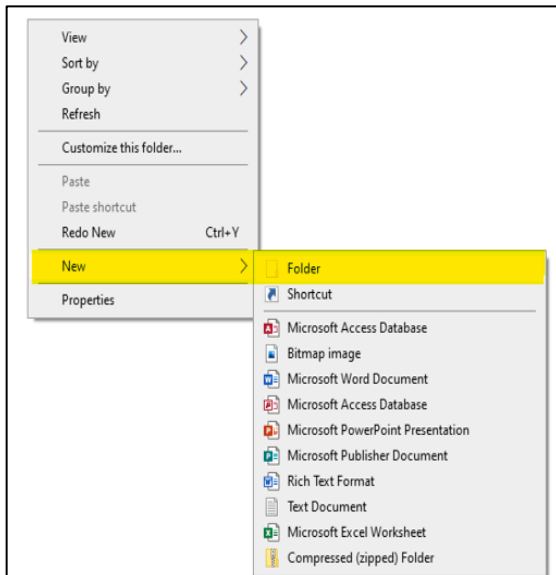
Option 1: IV Contrast Parameters 350 mgI/mL		
Ulrich Protocol 34		
Injections	Contrast Dosage	Injection Rate
Injection 1	43 ml Iohexol 350 mgI/mL + 50 mL NaCl flush	1.5 mL/sec
	Wait 10 minutes	
Injection 2	86 ml Iohexol 350 mgI/mL + 50 mL NaCl flush	3 mL/sec

Directions on how to save the UW injection protocols to a USB and download to your terminal:

1. You will need a blank USB drive.



2. Put the USB drive into the computer.
3. Click on the USB drive.
4. You will need to create a folder. Right click, choose “New”, then “Folder” and label Ulrich.



5. Open the Ulrich folder.



6. Right click, choose “New”, then “Folder” and label it **RemoteControl**. Make sure it is labeled exactly like this.
7. Now that you have the folders ready, you will need to open this link:
<https://radiology.wisc.edu/filesshelf/uwgect.wiscweb/program.xml>
8. Once XML file opens right click in the XML file select “Save As” make sure to find the RemoteControl folder on the USB. Don’t change file name from program or file type from XML document.
9. If these steps are done correctly your USB should look like: > Ulrich > RemoteControl.
10. Eject the USB drive from the computer and take it to the Ulrich terminal.
11. On the bottom of the monitor, put the USB drive in.



12. Click on this button
13. Click on Program List.
14. Click on Import List.
15. Click on Apply.
16. The new protocols should now be uploaded to your terminal.

